

Influence of Demography and Personality on Patient Choice of Treatment in Symptomatic Benign Prostate Hyperplasia

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ABSTRACT: **Background:** Benign prostate hyperplasia (BPH) is a common age-dependent urological condition that can adversely affect quality of life if the patient's treatment choice is inappropriate.

Objectives: To examine whether patients' demography and personality affect their decision regarding the type of treatment: namely, conservative or surgical.

Methods: A total of 105 BPH patients treated during the period 2005–2008 were retrospectively categorized into three groups according to treatment received: (i) medication only (n=056), (ii) combined treatment (the initial medication treatment was switched to surgical treatment) (n=32), and (iii) surgery only (n=17). A prerequisite for inclusion in the study was use of BPH medication for at least half a year before the study (groups 1 and 2). These groups completed the International Prostate Symptom Score (IPSS) questionnaire at the start of BPH medical treatment (IPSS 1) and at the start of the trial (IPSS 2), and the staff calculated the difference (IPSS 1-IPSS 2 = Delta IPSS = DIPSS). All three groups provided demographic data (age, country of origin, education) and completed tri-dimensional personality questionnaires (TPQ) to measure three independent "temperament" personality dimensions to evaluate how different individuals feel or behave: novel seeking (NS), harm avoidance (HA), and reward dependence (RD). Data were analyzed using chi-square, *t*-test, one-way ANOVA and logistic regression.

Results: The choice of BPH treatment differed according to demographic variables and the RD dimension.

Conclusions: Our study suggests that symptomatic BPH treatment is influenced less by the patient's personality and more by his life circumstances. Israeli-born patients were more conservative, Russian-born patients were ambivalent, and other foreign-born patients predominantly preferred surgical treatment. We assume that personality has a more decisive effect on patients with malignant disease and they accept the medical advice more easily.

IMAJ 2015; 17: 433–436

KEY WORDS: benign prostate hyperplasia (BPH), personality, demography

Although benign prostate hyperplasia (BPH) is an age-dependent condition, it may affect the quality of life in men over 50 years old due to the resultant decline in self-esteem and sexual health [1]. Poor patient-physician communication and collaboration may likely lead to patients not always choosing the optimal treatment for their specific condition [2]. Although the etiology of BPH is not well clarified, both the medical and surgical treatments comprise various modalities. Moreover, these modalities are often changed during the treatment course, causing confusion for both patients and medical staff. Consensus regarding BPH treatment depends on the progression of the disease: the less progressive the disease the more conservative the treatment.

Interestingly, it has been reported that BPH treatment is more successful when the patient's preference is taken into account [3]. According to the literature, racial and ethnic variations are associated with BPH treatment [4], while in our study the country of birth appears to have affected the choice of treatment. Patients with prostate cancer were found to be more affected by their personality and are more receptive to the medical consultation [5]. Our study was motivated by the observation that patients with similar BPH symptoms preferred different treatments. Our aim was to identify the factors, beyond the patients' clinical symptoms, that influence their choice of treatment.

PATIENTS AND METHODS

Following approval from the local ethics committee, 105 eligible patients were recruited from among 140 potential patients by phone or spontaneously during clinical visits between 1 January 2005 and 31 December 2008. Of the 35 patients who

Table 1. Study population characteristics

Variable	Medication (N=56)	Combined treatment (N=35)	Surgery (N=17)	P value
Mean age (years)	68.36 (6.8)	73.0 (5.1)	73.5 (6.8)	0.001
Education				
< 12 years	8.9	40.6	29.4	0.002
> 12 years	91.1	59.4	70.6	
Origin				
Israeli born	12.5	–	5.9	0.100
Immigrants	87.5	100.0	94.1	
Origin				
Israeli born	12.5	–	5.9	0.003
Immigrants from USSR	67.9	68.8	29.4	
Immigrants from other countries	19.6	31.3	64.7	
Employed	35.7	15.6	31.3	0.132
Duration of medication (groups 1 & 2)				
> 2 years	16.1	25.0	–	0.401
< 2 years	83.9	75.0	–	
TPQ (mean score) and prostate symptoms score				
NS	12.20 (4.1)	13.7 (4.1)	13.1 (4.2)	0.275
HA	16.0 (6.5)	16.22 (4.1)	13.7 (5.9)	0.300
RD	16.0 (3.7)	15.38 (4.1)	17.3 (3.1)	0.236
IPSS	15.61 (7.5)	21.0 (8.3)	–	0.003
DIPSS	4.95 (7.2)	2.69 (8.3)	–	0.088*

* Non-parametric test

NS = novel seeking, HA = harm avoidance, RD = reward dependence, IPSS = International Prostate Symptom Score, DIPSS = delta IPSS

Table 2. Treatment characteristics and outcomes of the medication-only and combined treatment study groups

Variable	Medication	Combined	P value
Medication change	60.7	43.8	0.181
Improved	78.6	34.4	0.000
No change	21.4	56.3	
Worsened	–	9.4	
Quality of life (good to very good)	62.5	12.5	< 0.001

were not eligible to participate, 28 were recruited by phone and 7 during a visit to the clinic. Most of the ineligible patients recruited by phone were elderly who found it too difficult to get to the hospital to complete the questionnaires. In addition, they had all undergone the surgery-only treatment and were foreign-born (not from the former Soviet Union). The other seven ineligible patients did not understand the purpose of the study. The 105 eligible patients signed informed consent forms and completed demographic and validated personality questionnaires in Hebrew or Russian with the aid of medical staff (urologist, psychiatrist, or nurse).

Patients in the medication-only and combined treatment groups were treated conservatively for symptomatic BPH for at least half a year before initiation of the study. This period is long enough to decide whether this type of treatment is sufficient and can be continued (group 1) or is not sufficient,

as in the combined group (group 2). They completed the International Prostate Symptom Score (IPSS) questionnaire before beginning the treatment and after at least half a year of medication treatment, and the medical staff calculated the differences (DIPSS). The third group, approximate age 73 years, presented with urinary retention and, therefore, we could not perform the IPSS analysis. The tri-dimensional personality questionnaire (TPQ) consists of 100 true-false unified biosocial model questions developed by Cloninger [6]. The model postulates three genetically independent but functionally interactive personality dimensions:

- novel seeking (NS), with high scores associated with curiosity and adventurousness
- harm avoidance (HA), with high scores associated with a cautious and worried outlook and low scores associated with a cheerful and optimistic outlook
- reward dependence (RD), where high scores indicate an ambitious, persistent and sentimental personality while low scores are associated with a cynical and pragmatic personality.

These personality dimensions were regulated by brain system monoamine neuromodulators: dopamine for NS, serotonin for HA and norepinephrine for RD.

Data were analyzed using SPSS software. Different invariant techniques (chi-square, *t*-test, one-way ANOVA) were used depending on the nature of the variables. Logistic regression models were estimated for two dependent variables based on the type of treatment: medication + combined (1) vs. surgery (0); and medication (1) vs. combined + surgery (0). Independent variables found in the invariant analysis to be statistically significant were entered into the models.

RESULTS

We recruited 56 patients for medication only, 32 for combined treatment, and 17 for surgery only. The mean age was different between the groups, such that the medication group was the youngest ($P = 0.001$) and typically had more years of education than the other groups ($P = 0.002$). Most of the recruited patients were immigrants (88%), and the majority of them were from former Soviet Union countries ($P = 0.003$). No significant differences in TPQ measurements were demonstrated between the study groups according to chi-square. IPSS results were higher ($P = 0.003$) and the DIPSS was lower ($P = 0.088$) in the combined-treatment group compared to the medication-only group [Table 1].

Table 2 demonstrates the differences between the medication-only and the combined-treatment study groups. The medication-only group reported better overall outcome (76% vs. 34.4%, respectively, $P < 0.0001$) and better quality of life (62.5% vs. 12.5%, respectively, $P < 0.0001$) than the combined group [Table 2].

Table 3. Results of the regression analysis: final models

Variable	B	SE	P	OR*	95% CI**
Dependent variable: Medication+Combined (1)/Surgery (0)					
Age	-0.101	0.046	0.029	0.90	0.82-0.99
Origin†	1.670	0.68	0.013	5.33	1.41-20.1
NS	-0.035	0.074	0.635	0.96	0.83-1.11
HA	0.075	0.058	0.194	1.07	0.96-1.20
RD	-0.220	0.100	0.028	0.80	0.66-0.97
Dependent variable: Medication (1)/Combined+Surgery (0)					
Age	-0.113	0.041	0.006	0.893	0.82-0.96
Employed††	0.381	0.588	0.517	1.46	0.46-4.63
Origin	0.421	0.508	0.407	1.52	0.005-5.46
Education‡	1.699	0.603	0.005	5.46	1.67-17.8
NS	-0.88	0.057	0.124	0.91	0.819-1.024
HA	0.051	0.044	0.252	1.05	0.965-1.147
RD	-0.016	0.061	0.800	0.98	0.87-1.11

*Origin: 1 = Israeli born, 0 = immigrants

††Employed: 1 = employed, 0 = not employed

‡Education: 1 = ≥ 12 years, 0 = < 12 years

NS = novel seeking, HA = harm avoidance, RD = reward dependence

The results of the regression analysis suggest that for the type of treatment chosen, age, origin and RD are explanatory factors for the medication + combined and surgery variables, and that age and level of education are explanatory factors for the medication and combined + surgery variables [Table 3].

DISCUSSION

In consultation with traditional medical staff, including primary care physicians and urologists [7], patients with symptomatic BPH in this post-paternalist era of medicine are more involved today than in the past in deciding which treatment is best for them. Given the variety of BPH treatment types, however, patients may be confused by medical advice, especially since the prescribing behavior of urologists and primary care physicians can vary. Therefore, it is important to strive for consensus via practical guidelines [7] even though the urologist's opinion about optimal treatment is known to have a greater impact on the patient's treatment decision [8].

Until recently, literature on BPH has typically focused on treatment modality and complications. More recent research, however, has been devoted to quality of life and patient satisfaction. Block et al. [9], who found that prostate cancer patients were more satisfied with treatment outcomes when they played a role in choosing their therapy, suggested that the modality of prostate cancer treatment is influenced by the patient's personality, which they claim also affects subsequent

follow-up care. On the other hand, Tsanani and co-authors [10] and Abadi-Korek and Shemer [11] confirm that physical complaints in prostate cancer patients after surgery were markedly reduced if there was a good relationship with the surgeons. Regarding breast cancer, Jansen et al. [12] and Johnson et al. [13] confirmed that most patients, especially young women, were unable to decide about treatment type and that enhancing patients' knowledge about their disease might lessen anxiety and make the treatment more bearable.

Studies on health and migration, especially in the case of malignant disease, highlight differences in health behavior between ethnic groups and between immigrant versus native residents, and point to environment, genetics, and duration of immigrant residency as among the determining factors [15-17]. Singh and Siahpush [14] commented that the immigrants in their study were more educated and had more health-enhancing behavioral profiles and lower mortality rates than their U.S.-born counterparts. Beiki et al. [15] examined the incidence of prostate cancer among natives and immigrants in Sweden and found that prostate cancer in immigrants was more common among those who immigrated at younger ages and who resided for greater lengths of time in Sweden. The authors also found a correlation between country of origin and mortality rate: generally, with the exception of immigrants from Latvia, Estonia and the Soviet Union, native-born Swedes had higher percentage rates of mortality. Kimura [16] compared prostate cancer epidemiology in patients born in the East vs. the West and concluded that the incidence of mortality was much lower in Asian countries than in both North America and Europe. However, mortality rates were higher among Asian immigrants in Western countries than among people in their countries of origin, and the prostate-specific antigen (PSA) screening rate in Asian people was lower than in people in the West. The concept of country of birth, education and age regarding BPH treatment is first mentioned in our study. In the article by Emberton and Martorana [1], patients with BPH preferred rapid symptomatic improvement, while in another article by Emberton [3] they preferred definitive treatment.

Our study assessed personality, country of origin, age and education as factors affecting patient choice of BPH treatment. We assume that the high number of immigrants in our study reflects the geographic location of our hospital. According to our results the patients who preferred the medication-only treatment were younger, employed, and better educated. Immigrants, most of whom were in the combined group, were relatively open to trying different treatments. The Israeli born patients were more conservative and did not change their original treatment choice (medication or surgery). We postulate that the younger subjects preferred medication to minimize the effects of their treatment on work and quality of life. The medication-only group had fewer urinary symptoms than the combined, as the IPPS showed before the treatment, and acquired better

results after at least 6 months of treatment (DIPSS). We found that immigrants from Russia were more compliant with their doctors' orders than were other immigrants, and they exploited all three types of treatment. With regard to personality in our study, the patients in groups 1 and 2 were more ambitious and persistent (high RD). In other similar studies, personality type was associated with patient satisfaction with hospital care [17], treatment decision making [5], and fatigue in patients with benign or malignant breast diseases [18].

CONCLUSIONS

Medical advice and patient's personality have less impact on type of treatment in cases of BPH than prostate cancer. In our study, BPH patients' preference of type of treatment was influenced by their country of origin, age and education. We suggest that although quality of life is influenced by personality traits, patients with benign disease should be more involved with the medical decision.

Acknowledgments

The authors thank Ronit Peled PhD from Ben-Gurion University of the Negev for the statistical analysis.

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